

## Using unmanned aerial vehicles for defence and security

Policy on 'drones' (unmanned aerial vehicles) needs to be updated to reflect increased use and advances in technology – strengthening regulation and informing the public.

### Policy implications

- The government policy on unmanned aircraft systems should be updated to address current and emerging issues – for instance, the distinction between fully automated and autonomous systems, and whether rapid-response automated defensive systems will exclude human decision-makers in the future.
- The government should carry out a wide-ranging consultation to identify the potential regulatory blind spots for smaller UAVs (unmanned aerial vehicles) – including manufacturers, operators, civil aviation authorities, national security agencies, civil liberty groups etc.
- Regulation of small drones should differentiate between use by individuals and by industry; regulation of industry drones would be potentially easier than private drones.
- Policymakers should engage in information-sharing with other countries regarding small drone regulation. The US and Ireland have introduced systems for registering small drones, with some success.
- At the international level, regulation of potentially problematic future UAV systems could be modelled on the nuclear nonproliferation treaty – allowing for civilian co-operation in the

development of autonomous technology, retaining control in the military sector, and complying with international humanitarian law.

- The government should develop a communication strategy to inform the public about the dangers, opportunities and complexities of drone technology.

### About the research

The use of 'drones', or UAVs (unmanned aerial vehicles), has increased rapidly over recent years, both for military and civilian purposes. This raises new challenges for policymakers in regulating lawful and ethical UAV use. Without effective drone regulation there is a danger that security threats can damage potentially beneficial developments.

One challenge is that the term 'drones' refers to widely different civilian and military UAV systems, ranging from simple hand-operated short-range vehicles to high-altitude long-range UAVs requiring an airstrip. This wide range of systems presents different ethical, legal and practical issues.

A workshop convened by the Partnership for Conflict, Crime and Security Research (PaCCS) explored the impact of new technologies on the defence and security sectors. This included findings from two research projects addressing the challenge of UAVs.

The workshop highlighted the complexity of this issue. There are widely different categories

## About the research - continued

of UAV, and public perceptions about their use are entangled with separate ethical questions (eg, around military drone strikes), uncertainties over future technological developments, and development of countermeasures against the hostile use of drones, for instance by terrorists.

### Key findings

- There is a lack of clarity regarding current management of small drones in the UK – for instance, there are no simple safeguards to counter hostile drones. Potential solutions include measures such as licence registration, geolocation protocols (to detect approaching drones), physical protection of vulnerable sites (such as nets), intrusive countermeasures (such as jamming GPS or hijacking control systems), and aggressive countermeasures (shooting the drones down or deploying UAV 'swarms' to attack hostile UAVs).
- Public perceptions about the use of military UAVs are confused and uneasy; the impact of drones on conflict and peace processes is often misrepresented and exaggerated, creating uncertainty about ethics and efficiency.
- There is a lack of clarity on how international law and regulatory frameworks apply to the military use of UAVs. Legal definitions are blurred by UAVs operating in so-called 'non-obvious war' and 'ungoverned spaces', and terms such as 'unlawful combatants' and 'pre-emptive targeted lethal action'.
- Future development of drone technology will present new challenges – for instance, the degree of human intervention. For compliance with Article 36 of the Geneva Conventions there must be a clear divide between whether a human or machine is making the decision.
- Human decision-making could present big vulnerabilities in future defensive systems. With the increasing speed and unpredictability of inbound threats we might need to accept autonomous or highly automated response mechanisms.

### BRIEF DESCRIPTION

The policy briefing *The governance of unmanned aerial vehicles in defence and security* outlines the insights from a workshop convened by the Partnership for Conflict, Crime and Security Research (PaCCS), including policymakers, engineers, technologists, practitioners and representatives from industry and non-governmental organisations. The workshop explored the impact of new technologies on the defence and security sectors, focusing on questions of governance, ethics and the law.  
Web: [www.paccsresearch.org.uk/policy-briefings/governance-of-unmanned-aerial-vehicles/](http://www.paccsresearch.org.uk/policy-briefings/governance-of-unmanned-aerial-vehicles/)

### FURTHER INFORMATION

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The Partnership for Conflict, Crime and Security Research aims to deliver high-quality and cutting-edge research to help improve our understanding of current and future global security challenges. It is an initiative of Research Councils UK, with ESRC as one of the core members along with the Arts and Humanities Research Council and the Engineering and Physical Sciences Research Council.  
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